

A NEW SPECIES OF *MARSDENIA* R. BR. (ASCLEPIADACEAE) FROM EASTERN AUSTRALIA

J.B. Williams

Botany Department, University of New England, Armidale N.S.W. 2351

Summary

Marsdenia liisae J. Williams, a new species from north-eastern New South Wales related to *M. glandulifera* C. White of Queensland, is described and figured. Notes on habitat, distribution and conservation status are given.

Introduction

This paper complements the series Studies on the Australasian Asclepiadaceae (Forster 1987; Forster & Thongpukdee 1988) by providing a name and description for the sole New South Wales *Marsdenia* species that is known to be distinct but which is as yet unnamed. Flowering material of this species was first collected by the writer in the New England National Park, west of Bellingen, New South Wales, in February 1974 and later on the Nightcap Range north of Lismore in December 1975, during a survey of rainforest climbing plants of New South Wales (Williams & Harden 1980). It is similar to *M. rostrata* R. Br. but has much larger flowers and several leaf and other floral differences. A further excellent collection of flowering material was made near Tyringham, New South Wales, in February 1976 by Ms M.L. Lapinpuro, who included a partial description and line drawings of the species in her thesis on the Asclepiadaceae of north-eastern New South Wales (Lapinpuro 1976). Subsequently the writer published a short description in flora format as *Marsdenia* "Unnamed species" (Williams 1984). Since 1976 several more collections have been made but only three further flowering populations have been found. Curiously, examination of collections at NSW, BRI and MEL revealed no material of this species, apart from the above-cited collections by the writer and Lapinpuro.

The floral description of the species is based partly on material preserved in spirit and on fresh material, as well as on herbarium specimens.

***Marsdenia liisae* J. Williams, species nova affinis *M. glanduliferae* C.** White sed pedicellis tenuioribus longioribusque (9–25 mm longis), pedunculis 8–40 mm longis, lobis corollae in alabastro ± rectis, apice leviter spiraliter convoluto, sepalis ciliatis et lobis corollae ciliatis, corollae fauce et in tubo breviter pubescenti; parte basali coronae alata, cucullata carnosae et parte supera subtereti vel compressa incurva, folliculis angustatis, lanceolatis-fusiformibus, 10–13.5 cm × 2–2.5 cm, et glandibus 2–16, elevatis, minoribus, ca 0.4 mm longis ad basim costae laminae differt. **Typus:** New South Wales. NORTH COAST SUBDIVISION: 9 km along Deervale loop road from its western junction with Ebor–Dorrigo road, February 1988, *J. Williams* 88078 (holo: BRI; iso: K,NSW,NE).

Marsdenia "Unnamed species" of J.B. Williams in N.C.W. Beadle, Students Flora of North Eastern New South Wales, Part 5: 732, t. 322k (1984).

Semi-woody vine to 5 m high. Stems glabrous or sparsely puberulent when young, green or purplish, twining, 1–7 mm thick with copious milky latex; older stems with pale fissured corky bark; shoot tips pubescent. Leaves petiolate. Lamina chartaceous, rather thick, oblong-ovate to oblong, ovate or ovate-deltoid, glabrous or almost so, moderately dark green and glossy above, pale green below, 4–18 cm long, 1.5–8 cm wide; margins undulate; apex acuminate, often abruptly, to a rather fine point; base deeply to shallowly cordate or rounded-truncate, rarely broad-cuneate; midvein green or purple; secondary veins prominent, moderately raised below, 5–9 on either side of the midvein, making looping interconnections; coarsest reticulate veins distinct, others obscure; 2–16 erect glands ca 0.4 mm long present on the upper surface of the lamina at base of midvein. Petiole 13–55 mm long, green or purple, terete but mostly grooved above, glabrous or sparsely puberulent above. Inflorescences simple, lax, pedunculate, 2–8-

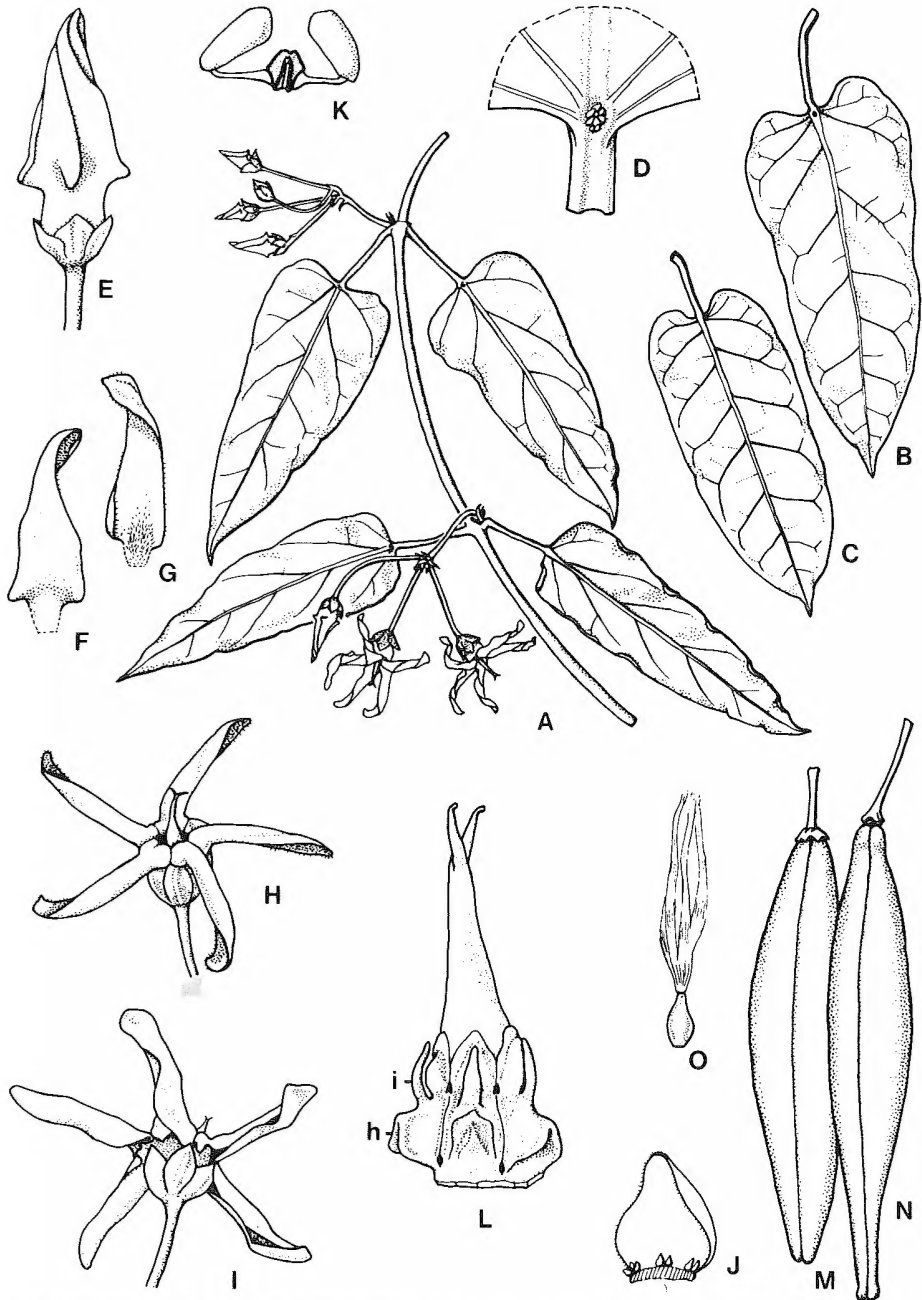


Fig. 1. *Marsdenia liisae*. A. part of flowering shoot with simple umbels $\times 0.5$. B, C. leaves showing variation in shape and size $\times 0.4$. D. base of lamina, adaxial view, showing cluster of squamellae $\times 4$. E. flower bud showing contorted corolla lobes spirally twisted at the apex and each with an abrupt projection at the base $\times 2$. F. corolla lobe removed from bud (abaxial view) $\times 2$. G. corolla lobe removed from bud (adaxial view) $\times 2$. H. single flower from above $\times 1$. I. single flower from below $\times 1$. J. adaxial view of single sepal showing ciliate margins and basal glands $\times 3$. K. pollinarium $\times 18$. L. base of flower dissected to show staminal corona and long-exserted bifid style (i = incurved free part of corona segment, h = hooded basal part of corona segment) $\times 3$. M, N. fruits $\times 0.5$. O. seeds with long coma $\times 0.7$. All drawn from type collection except M (M, Williams 75159); A–D from dry specimens, E–O from fresh or preserved specimens.

flowered umbels; peduncles solitary, interpetiolar, rarely forked, glabrous, 8–40 mm long; pedicels slender, glabrous, 9–25 mm long. Sepals broad-lanceolate to ovate, obtuse, 3.3–6.5 mm long, 2–5.5 mm wide, glabrous except for the ciliate margins; minute glands (squamellae) 0.3–0.5 mm long scattered in groups of 2 or 3 at base of sepals inside, numbering *ca* 20–25 per calyx. Corolla creamy-yellow, rotate, 8–9 mm long, 20–43 mm diameter; lobes spreading not reflexed, linear-lanceolate, obtuse, twisted near apex, 9–20 mm long, 2–5 mm wide, glabrous externally, internally shortly pubescent near the base; margins ciliate, strongly recurved; in bud corolla lobes straight, not spirally twisted except near the apex, each with an abrupt lobe at the base; tube broad-ovoid, 5.5–8 mm long, 5–7 mm diameter, glabrous outside, shortly pubescent inside and at the throat; corolline corona absent. Staminal column 8–16 mm long, 3.3–5 mm diameter; anthers with an obtuse membranous appendage at the apex; corona greenish, of 5 double segments, the lower part of each segment 2–3 mm long, adnate to the base of the column, with a hood-shaped fleshy wing, the upper part free, slender, subterete or somewhat compressed, incurved, white, 2.3–2.6 mm long. Style-head conical, white, much longer than the stamens, the apex bifid, exerted up to 4 mm beyond the corolla tube; ovaries glabrous. Pollinia ascending, without pellucid margins, oblong-ovoid, yellow, *ca* 0.7 mm long and 0.3 mm wide; translators slender, 0.4–0.5 mm long; corpusculum dark red, *ca* 0.35 mm long and 0.3 mm wide. Follicles lanceolate in outline or fusiform, turgid, 10–13.5 cm long, 2–2.5 cm diameter. Seeds compressed, ovate-lanceolate, 9–11 mm × *ca* 4.5 mm; coma 30–40 mm long. **Fig. 1.**

Selected specimens: New South Wales. NORTH COAST: Whian Whian State Forest, junction of Nightcap track and Gibbergunya Range road, 29 km N of Lismore, Dec 1975, *Williams* 75159 (flowers, BRI,MEL,NE,NSW); 8 km east of Tyringham on Grafton-Armidale road, Feb 1976, *L. Lapinpuro* s.n. (flowers, BRI,NE,NSW); Bruxner Park, 9 km NW Coffs Harbour, Dec 1980, *Williams* 80255 (NE,NSW); Grasree Ridge, New England Nat. Park, Feb 1974, *Williams* 74025 (flowers, BRI,NE,NSW); Black Scrub Ridge, Bellinger River State Forest, Nov 1979, *Floyd* 1394 (NE); upper Hastings River *ca* 30 km NNW of Yarras, Mar 1981, *Williams* 81037 (NE,NSW); Banda Beech Preserve, Dec 1980, *Williams* 80263 (flowers, BRI,MEL,NE,NSW).

Distribution: The species has been found only in the North Coast district of New South Wales. The distribution map (**Map 1**) indicates a concentration in three more or less disjunct areas, the higher portion of the Nightcap Range north of Lismore, the Dorrigo Plateau and adjacent ranges, and, further south, the headwaters of the Hastings River. There are several areas of apparently suitable habitat in Queensland.

Habitat: *M. liisae* occurs over an altitude range of 300–1050 metres, in sites with a mean annual rainfall of *ca* 1400–2000 mm, and on deep soils derived from a wide range of rocks including rhyolite, basalt and granodiorite as well as argillite and other fine-grained metamorphics. It has been found in both tall eucalypt forests and in rainforests of various types including subtropical, warm-temperate and cool-temperate, often along roadsides. The most common associated trees are the rainforest species *Ceratopetalum apetalum*, *Doryphora sassafras*, *Callicoma serratifolia* and *Nothofagus moorei*, and the eucalypts *E. microcorys*, *E. saligna* and *E. pilularis*.

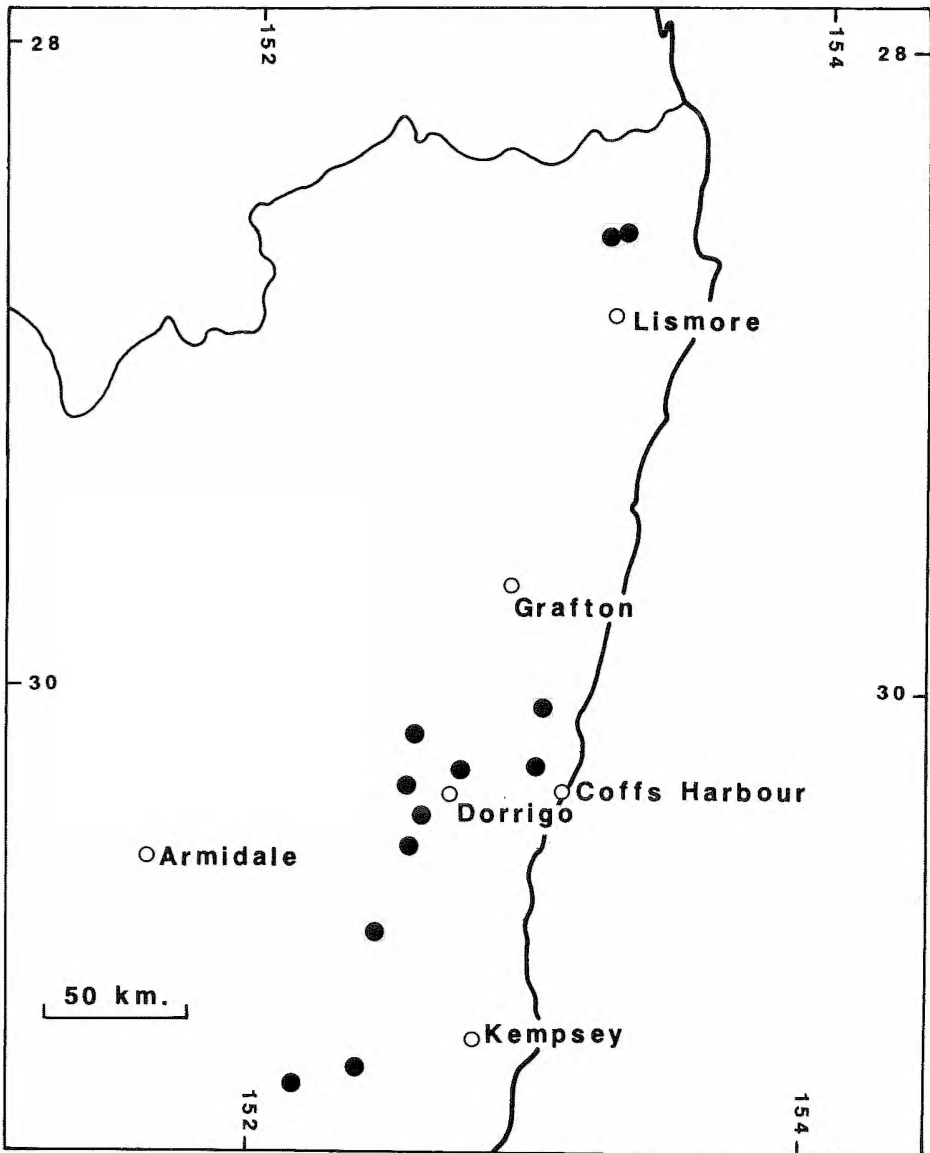
Phenology: This species flowers from December to February. Fruiting specimens have been collected in late December and in February.

Notes: Among Australian species *Marsdenia liisae* most nearly resembles *M. glandulifera* C. White and *M. rostrata* R. Br., especially in the very long ± conical bifid style-head and strongly rotate corolla. It also resembles *M. glandulifera* in the very large flowers and the usually large, cordate leaves. It is readily distinguished from *M. glandulifera* by the lax, simple umbels with long slender peduncles and pedicels, the ciliate sepals and petals, the presence of a fine, short tomentum within the corolla tube, at the throat and on the base of the corolla lobes, the flower buds with ± straight not conspicuously spirally twisted corolla lobes, the large but slender, lanceolate-fusiform (not ovoid) follicles 10–13.5 cm long and the 2–16 smaller, less conspicuous squamellae at the base of the lamina. The geographic ranges of *M. liisae* and *M. glandulifera* are widely separated and their habitats are different. Vegetatively *M. liisae* might be confused with the larger-leaved forms of *M. rostrata* but the leaf apex in *M. liisae* is finely pointed, the lamina is thicker and more deltoid and the margins are strongly undulate; the lateral veins make narrower angles of 30–50° (not 45–75°) with the midvein. The flowers with corollas 2–4 cm across are far larger than those of *M. rostrata* and the tomentum in the corolla tube and throat is different, lacking the thick pointed retrorse hairs and not forming 5 tufts as in that species. The long slender follicles contrast with the broad ovoid follicles of *M. rostrata*. The flower buds of *M. liisae* are very distinctive with five abrupt

projections in the lower part. The corona of *M. liisae* is also distinctive, each segment having a hood-shaped, winged adnate basal part and an incurved free upper part. The umbels of *M. liisae* are deciduous, showing no tendency to develop perennial elongated peduncles as do those of *M. glandulifera*.

Some variation in flower size and in the form and size of leaves has been noted.

The leaf blades often vary considerably in size and shape on the same plant, with the upper laminas on flowering shoots being relatively small and not at all cordate at the base. Specimens from the northern population on Nightcap Range have somewhat smaller flowers than the others. Rarely two umbels are found on a short common peduncle.



Map 1. Distribution of *Marsdenia liisae* from herbarium specimens.

Conservation status: The species is presently known from some thirteen populations; all the collections examined were made in the period 1972–1988. Several of the gatherings are from single plants and no extensive populations have been found. Since several collections were made along roadsides it seems that *M. liisae* is not disadvantaged by moderate disturbance. Nine of the populations are within National Parks, Nature Reserves, or forestry Flora Reserves. On present knowledge its status is assessed as 3RC, i.e. rare but not vulnerable, using the risk coding of Leigh, Briggs and Hartley (1981).

Vernacular name: *M. liisae* has been known as Large-flowered Milk Vine in New South Wales (Williams & Harden 1980).

Etymology: Named in honour of Ms Liisa Lapinpuuro of Armidale, who made an early collection of this species, gave a preliminary account of its features and has provided considerable information on the morphology of Australian Asclepiadaceae (Lapinpuuro 1976).

Acknowledgements

Mr N. Byrnes kindly provided comments on the distinctiveness of *M. liisae* when specimens were sent to BRI in 1976. I thank the Directors of the Queensland Herbarium, Brisbane, the National Herbarium of New South Wales, Sydney and National Herbarium of Victoria, Melbourne for providing access to material.

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- Accepted for publication 2 March 1989